

Customer No.: 31561
Application No.: 10/709,261
Docket No.: 8905-US-PA-1

AMENDMENTS

In The Claims

1-5. (canceled)

6. (currently amended) A method for fabricating a piezoelectric workpiece with augmenting surface electrode, said piezoelectric workpiece having a plurality of function electrodes for electrically connected in an electric circuit for energy conversion or signal filtering between electrical and mechanical forms in a piezoelectric system, said method comprising the steps of:

- a) forming a body of piezoelectricity for implementing said energy conversion; and
- b) forming a plurality of function electrodes on the surface of said body, said plurality of function electrodes being connected in said electric circuit for implementing said energy conversion; at least one of said function electrodes having a shape with a contour of at least one acute angle;
- c) forming at least one polarization augmenting surface electrode on the surface of said body proximate to said acute angle, said polarization augmenting surface electrode and said proximate function electrode thereof constituting a gross electrode when connected electrically together; and
- d) polarizing electric dipoles of grain molecules of said body utilizing said gross electrode, said gross electrode substantially canceling said acute angle when paired with one of said function electrodes and connected to a polarization voltage for implementing said polarization; and said polarization voltage polarizing electric dipoles of grain molecules of said body in

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between said pair so that the boundary region between different polarization orientation distribution regions within said piezoelectric workpiece is smoothed without any acute angle.

7. (currently amended) The fabricating method of claim 6 wherein said at least one polarization augmenting surface electrode has a shape that is substantially elongated.

8. (currently amended) The fabricating method of claim 7 wherein said at least one polarization augmenting surface electrode of substantially elongated shape has at least one smooth edge opposite to said acute angle of said proximate function electrode.

9. (currently amended) The fabricating method of claim 6 wherein said at least one polarization augmenting surface electrode has a shape that is substantially a closed-loop ring surrounding said proximate function electrode.

10. (currently amended) The fabricating method of claim 9 wherein said at least one polarization augmenting surface electrode of substantially closed-loop ring has at least one smooth edge opposite to said acute angle of said proximate function electrode.

11. (currently amended) A method for fabricating a piezoelectric workpiece with augmenting surface electrode, said piezoelectric workpiece having a plurality of function electrodes for electrically connected in an electric circuit for energy conversion or signal filtering between electrical and mechanical forms in a piezoelectric system, said method comprising the steps of:

- a) forming a body of piezoelectricity for implementing said energy conversion; and
- b) forming a plurality of function electrodes on the surface of said body, said plurality of function electrodes being connected in said electric circuit for implementing said energy

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conversion; at least one of said function electrodes having a shape with a contour of at least one acute angle; and

c) polarizing electric dipoles of grain molecules of said body utilizing at least a polarization augmenting surface electrode pressed onto the surface of said body proximate to said acute angle; wherein

said polarization augmenting surface electrode and said proximate function electrode thereof constituting a gross electrode when connected electrically together, said gross electrode substantially canceling said acute angle when paired with one of said function electrodes and connected to a polarization voltage for implementing said polarization; and

said polarization voltage polarizing electric dipoles of grain molecules of said body in between said pair so that the boundary region between different polarization orientation distribution regions within said piezoelectric workpiece is smoothed without any acute angle.

12. (currently amended) The fabricating method of claim 11 wherein said at least one polarization augmenting surface electrode has a shape that is substantially elongated.

13. (currently amended) The fabricating method of claim 12 wherein said at least one polarization augmenting surface electrode of substantially elongated shape has at least one smooth edge opposite to said acute angle of said proximate function electrode.

14. (currently amended) The fabricating method of claim 11 wherein said at least one polarization augmenting surface electrode has a shape that is substantially a closed-loop ring surrounding said proximate function electrode.

15. (currently amended) The fabricating method of claim 14 wherein said at least one

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polarization augmenting surface electrode of substantially closed-loop ring has at least one smooth edge opposite to said acute angle of said proximate function electrode.

16. (canceled)

17. (new) A method for fabricating a piezoelectric workpiece for electrically connected in an electric circuit for energy conversion or signal filtering between electrical and mechanical forms in a piezoelectric system, said method comprising the steps of:

- a) forming a body of piezoelectricity for implementing said energy conversion; and
- b) forming a plurality of function electrodes on the surface of said body, said plurality of function electrodes being connected in said electric circuit for implementing said energy conversion; at least one of said function electrodes having a shape with a contour of at least one acute angle; and
- c) polarizing electric dipoles of grain molecules of said body utilizing at least a polarization augmenting electrode pressed onto the surface of said body proximate to said acute angle; wherein

said polarization augmenting electrode and said proximate function electrode thereof constituting a gross electrode when connected electrically together, said gross electrode substantially canceling said acute angle when paired with one of said function electrodes and connected to a polarization voltage for implementing said polarization; and

said polarization voltage polarizing electric dipoles of grain molecules of said body in between said pair so that the boundary region between different polarization orientation distribution regions within said piezoelectric workpiece is smoothed without any acute angle

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wherein said at least one polarization augmenting electrode is pressed onto the surface of said body only during said fabrication and is removed after said fabrication.